

TERMINAL APPARATUS

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a terminal apparatus which has at least two (2) display units.

[0003] 2. Description of the Related Art

[0004] Currently, for a portable telephone (including PHS (Personal Handyphone System)), a display unit such as a liquid-crystal screen is indispensable. This is because it acts as an interface when a user conducts various operations, such as making a telephone call (including videophone), reading a schedule book or an address book to check details, calling a menu for various settings, reading and writing a mail, browsing Web contents, viewing still images and moving images and others. Considering visibility and usability, it is desirable to use the display unit as broadly as possible for above-mentioned operations.

[0005] But, on the conventional display unit of the portable telephone, so-called status information such as a remaining level of a battery, an radio wave receiving condition, a date, an icon for indicating a setting status of the manner mode (a mode which notifies of an incoming call by means other than sound (vibration, light emitting and others)), an icon for indicating a setting status of an alarm, an icon for indicating presence of unanswered incoming calls (phone call, e-mail, facsimile and others), an icon for indicating presence of voice messages (messages left on an answering machine) and an icon for indicating being in the internet connection status, or guidance information which indicates functions allocated to input means (buttons, keys and others) of the portable telephone is displayed such that upper and lower zones of a liquid-crystal screen are occupied.

[0006] Therefore, as a method for enlarging the display area of the display unit, in Japanese Patent Application Laid-Open Pub. No. 2002-369252, in a folding-type portable telephone having two (2) display units (main screen and sub-screen), by displaying the guidance information on the sub-screen which can be visually recognized regardless of being in a folded state, a main screen is enlarged because the guidance information which is traditionally displayed is moved to the sub-screen.

[0007] However, in conventional examples, the status information is still displayed on the (main) display unit, and it has not yet achieved to use the whole display unit to read and write an e-mail, browse Web contents or view still images and moving images, and room for improvement has been left.

SUMMARY OF THE INVENTION

[0008] It is therefore the object of the present invention to provide a terminal apparatus and display method which ensures that, when viewing texts of e-mails and Web contents or viewing and shooting still images and moving images, these operations can be performed using a whole (main) display unit.

[0009] In order to achieve the above object, according to the major aspect of the present invention there is provided a terminal apparatus having a first and a second display units;

and a control unit which controls display contents of the first and the second display units respectively, wherein the control unit displays, on the second display unit, status information as well as an operation key associated with the display contents displayed on the first display unit and changes the display contents displayed on the first display unit in response to an input with the operation key.

[0010] Preferably, the status information displayed on the second display is visually recognizable as long as the power is on. It is preferred that if there is an concomitant display which is displayed concomitantly to the display contents, the control unit display the concomitant display on the second display unit. The operation key may be a touch panel. The status information may include any one selected from a group having a remaining level of a battery, an radio wave receiving condition, a date, an icon indicating a setting status of the manner mode, an icon indicating an alarm setting status, an icon indicating presence of unanswered incoming calls, an icon indicating presence of messages left on an answering machine and an icon indicative of being in the Internet connection status.

[0011] Moreover, the terminal apparatus may further have a joint unit for joining a first housing where the first display unit is disposed and a second housing where the second display is disposed each other, wherein the first housing and the second housing is foldably joined together via the joint unit and the status information is displayed on the second display unit such that it can be visually recognized in a folded state.

[0012] According to the present invention, status information or guidance information is not displayed on a first display unit (main screen) to enable effective utilization of whole screen, and a layout of the screen becomes more clear than the case that such information is displayed, and visibility is improved. The display area of the first display unit is further enlarged by displaying an concomitant display on a second display unit (sub-screen), which is displayed concomitantly to the display contents of the first display unit.

[0013] For example, in the case of using videophone, traditionally, an image shot by a terminal of the other calling party (face of the other party) and an image shot by own terminal (face of oneself) are displayed on one (1) screen, but by displaying the face of the other party on the main screen and the face of oneself on the sub-screen, it is possible to feel like talking face to face, and the sense of reality is enhanced. Also, by using the sub-screen for pre-viewing an image file attached to an e-mail, the main screen can continue displaying the body text, and it is possible to read the body text while identifying the image file, without the display area of the body text being occupied by the attached image file. Therefore, a user can make the most of e-mails, Web contents, moving images, still images and others without being bothered by status information and guidance information.

[0014] Since operation keys are displayed on a touch panel provided on the second display unit (sub-screen) depending on the display contents of the first display unit, a button layout is organized, and since the operation keys displayed on the sub-screen act as input means, it is not necessary to display the guidance information. Further, by watching the second display unit, the user can identify the status information. For this status information, if the concomitant